

DEVAL L. PATRICK GOVERNOR TIMOTHY P. MURRAY LIEUTENANT GOVERNOR JUDYANN BIGBY, MD SECRETARY

JOHN AUERBACH COMMISSIONER

The Commonwealth of Massachusetts

Executive Office of Health and Human Services
Department of Public Health
William A. Hinton State Laboratory Institute
305 South Street, Jamaica Plain, MA 02130

01/13/2012

Khushbu Mehta Assistant District Attorney, Norfolk County

Dear ADA Mehta,

Enclosed is the information you requested in regards to Commonwealth vs. Included are copies of the following:

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- 1. Curriculum Vitae for Annie Dookhan.
- 2. Drug Analysis Laboratory Receipt.
- 3. Control Cards with analytical results for samples #



- 4. Analysis sheets with custodial chemist's hand notations and test results.
- 5. GC Spectral analytical data for samples #
- 6. GC/Mass Spectral analytical data for samples #

Annie Dookhan was the custodial chemist and performed the preliminary testing and net weight for this sample. Peter Piro analyzed the GC/MS data for this sample.

If you have any questions about these materials, please call me at the number below.

Annie Dookhan

Chemist

Sincerely.

Drug Analysis Lab

Jamaica Plain, MA. 02130

(617) 983-6622

Curriculum Vitae

Annie Khan (Dookhan)

Education:

University of Massachusetts, Boston, Ma, Master of Science in Chemistry. University of Massachusetts, Boston, Ma, Bachelor of Science in Biochemistry.

Experience:

2003 - present

Chemist I, II, Massachusetts Department of Public Health, Drug Analysis Laboratory

- *Responsible for the identification of illicit drugs to determine violations of harmful and narcotic drug laws.
- *Writing, revising and reviewing Standard Operating Procedures (SOPs) and Protocols.
- *Responsible for the Quality Control of all analytical instruments, reagents and controls/standards.
- *Oversee the Quality Control/Quality Assurance program for the Drug Lab.
- *Maintenance and repairs of all analytical instruments.
- *Trained in the use of complex analytical instrumentation, microscopes and balances for the purpose of drug analysis.
- *Qualified as an expert witness in Massachusetts Courts and U.S. District Court.
- *Completed six-week training course conducted by senior staff within the Department of Public Health, Drug Analysis Laboratory.
- *Appointed Assistant Analyst by Assistant Commissioner of Public Health, 2004.
- *Notary Public.

2001 - 2003

QC Analyst I, II, UMMS-Massachusetts Biologic Laboratory, QC Material Control

- *Completed proficiency training conducted by a member of the staff within the MLB Quality Control and Quality Assurance Department for the Food and Drug Administration.
- *Method Development for creating new techniques and enhancing vaccines for the QC Dept. and FDA.
- *Writing, revising and reviewing Standard Operating Procedures (SOPs).
- *Trained and supervised new chemists and interns for the department.
- *Routine QC testing of products for the FDA.
- *Trained in the use of complex analytical instrumentation, and balances for the purpose of QC analysis for product and validation projects.
- *Calibration, preventive maintenance, QC and QA of analytical instrumentation.
- *Complete testing of chemicals for Vendor Validation Project for the FDA.
- *Compendial testing and interpretation of the USP, ACS, FCC, AOAC, Merck Index, PDR, etc.

Additional Training:

Dept. of Justice – Forensics Professionals. (numerous trainings)

GLP/GMP training with Massachusetts Biologic Laboratory.

OC/QA training according to FDA Codes and Regulations.

GC and GC/MS trainings with Agilent Technologies and Restek.

HPLC and LC/MS/MS trainings with Waters Cooperation.

FTIR training with Spectros.

TOC training with MBL and Sievers.

Association:

American Chemical Society (ACS)

Northeastern Association of Forensics Science (NEAFS)

PLEASE PRINT CLEARLY OR TYPE ALL INFORMATION

The Commonwealth of Massachusetts

Executive Office of Health and Human Services

Department of Public Health State Laboratory Institute

Boston Drug Laboratory Tel (617) 983-6622 Fax (617) 983-6625

Amherst Drug Laboratory Tel (413) 545-2601 Fax (413) 545-2608

Boston Hours

8:00 - 11:00

2:00 4:00

DRUG RECEIPT

Amherst Hours

9:00 - 12:00

1.00 2.00

2:00 – 4:00	1:00 – 3:00
City or Department: NORWOOD	Police Reference No.:
Name and Rank of Submitting Officer: OFF. The	ands America
Defendant(s) Name (last, first, initial):	
To be completed by Submitter Description of Items Submitted	To be completed by Lab Personnei Gross Weight Lab Number
	Gross Weight Lab Rumber
COTONWILLO A Land land	1.45 m
Town rowhen hesidue / Justil	PAZKAGING 1195 JM
COTON W/BOWN PONDER RESIDUE / MAINE DWHITE CAPSULES/ABITE PALLAGING	2.01 pc
<i>y</i> , <u>-</u> ,	
	,
•	
\mathcal{N}_{A}	
Received by:	Date:

Date Analyzed: City: Norwood Folice Dept.

Officer: P.O. ANNINO

4

Subst: RES Amount:

No. Cont: Cont: cotton

Date Rec'd: 05/05/2011 No. Analyzed:

Gross Wt: 1.450 Net Wt:

#Tests: 5ASO

@ 2.P.P. D

Prelim: Buprenor enchEindings: Bupiewas phine

DRUG POWDER ANALYSIS FORM

SAMPLE#	AGENCY NONC	COOL ANA	LYST	Aso
No. of samples tested:		Evidenc	e Wt.	
PHYSICAL DESCRIPTION:		Gross Wt	():	
Residue in	& compup	سرا Gross Wt	():	
rins	e O	* * * * * * * * * * * * * * * * * * * *	g. Wt:	
			•	
				•
PRELIMINARY TESTS Spot Tests		Microcrystall	ne <u>Tests</u>	
Cobalt Thiocyanate (~)		Gold Chloride		
Marquis 4		TLTA ()		
Froehde's +		OTHER TE	STS	
Mecke's		GC+		<u> </u>
				and the second s
PRELIMINARY TEST RESULTS		GC/MS CONFIRM	TORY TEST	• . • .
RESULTS Bugasagens		RESULTS Bug	enocopyó.	<u>e</u>
DATE 6-22-11		MS OPERATOR P	20	
		DATE	-1-11	

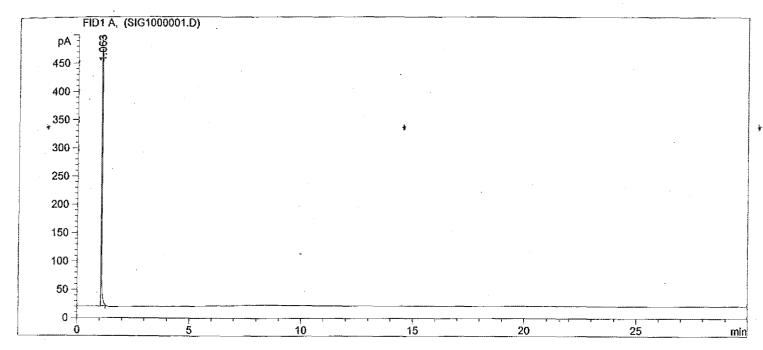
11e C:\CHEM32\1\DATA\SIG1000001.D

e Name: BLANK

Acq. Operator : ASD Seq. Line : 1
Acq. Instrument : DrugLab GC #2 Location : Vial 1
Injection Date : 6/22/2011 7:15:20 AM Inj : 1

Inj Volume : 1 μ 1

Sequence File : C:\CHEM32\1\SEQUENCE\DEFAULT.S
Method : C:\CHEM32\1\METHODS\GENSCAN.M
Last changed : 3/9/2011 1:49:11 PM by ASD



Area Percent Report

Sorted By : Retention Time Multiplier: : 1.0000 Dilution: : 1.0000

Sample Amount: : 1.00000 [ng/ul] (not used in calc.)

Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

	RetTime [min]	_			Height [pA]	Area %
1	1.063	1	BB S	6.87514e4	6.57779e4	1.000e2

Totals: 6.87514e4 6.57779e4

COKE/CODEINE COND

COKE/CODEINE STD

Operator : ASD Instrument : DrugLab GC #2

Seq. Line: 2 Location : Vial 2

Inj: 1 Inj Volume : 1 μ l

sequence File

: C:\CHEM32\1\SEQUENCE\DEFAULT.S

Method Last changed : C:\CHEM32\1\METHODS\GENSCAN.M

: 3/9/2011 1:49:11 PM by ASD

FID1 A, (SIG1000002.D) pA = 450 -400 -350 -300 250 -200 -150 -100 -50 -10

Area Percent Report

Sorted By Retention Time Multiplier: . : Dilution:

Sample Amount: 1.00000 [ng/ul] (not used in calc.)

1.0000

1.0000

Do not use Multiplier & Dilution Factor with ISTDs

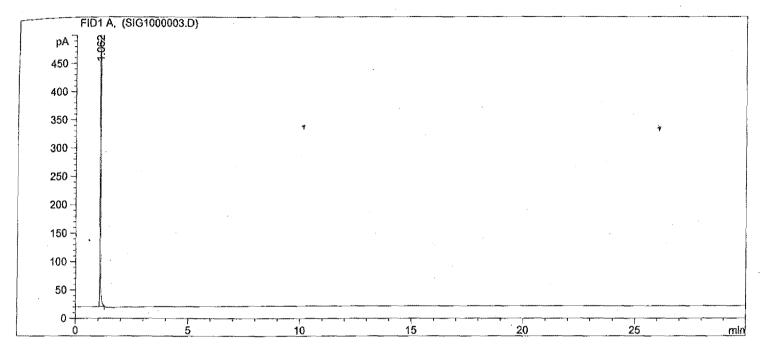
Signal 1: FID1 A,

Peak	RetTime	Sig	Type	Area	Height	Area
					[pA]	
1	1.062	1	BB S	6.81859e4	6.46761e4	98.94654
2	6.926	1	BB	371.74820	480.34280	0.53945
3	7.478	1	BB	354.21149	457.76462	0.51401

Totals :

6.89119e4 6.56142e4

gequence File : C:\CHEM32\1\SEQUENCE\DEFAULT.S
Method : C:\CHEM32\1\METHODS\GENSCAN.M
Last changed : 3/9/2011 1:49:11 PM by ASD



Inj Volume : 1 μ l

Area Percent Report

Sorted By : Retention Time Multiplier: : 1.0000 Dilution: : 1.0000

Sample Amount: : 1.00000 [ng/ul] (not used in calc.)

Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

Peak	RetTime	Sig	Туре	Area	Height	Area
					[pA]	
		•		•		
1	1.062	1	BB S	6.96852e4	6.53021e4	1.000e2

Totals: 6.96852e4 6.53021e4

CHEM32\1\DATA\SIG1000035.D

Seq. Line: 35

operator : ASD Instrument : DrugLab GC #2

Location : Vial 35

d 100 Date : 6/22/2011 8:13:00 PM

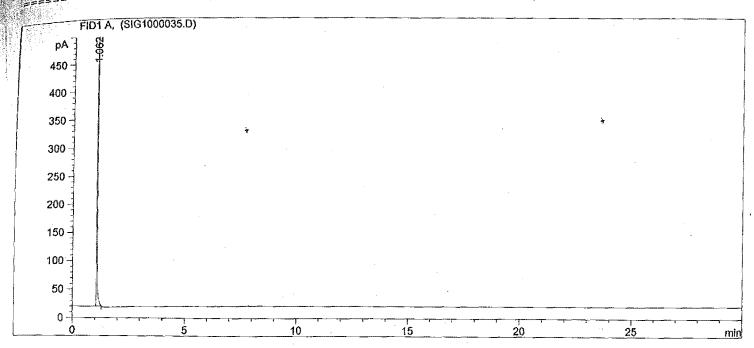
Inj: 1Inj Volume : 1 μl

gequence File : C:\CHEM32\1\SEQUENCE\DEFAULT.S

Method

: C:\CHEM32\1\METHODS\GENSCAN.M : 3/9/2011 1:49:11 PM by ASD

Last changed



Area Percent Report

Sorted By Retention Time Multiplier: : 1.0000 Dilution: 1.0000

Sample Amount: 1.00000 [ng/ul] (not used in calc.)

Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

Peak RetTime Sig Type Area Height Area [pA*s] [pA] ----1 1.062 1 BB S 6.28755e4 6.41218e4 1.000e2

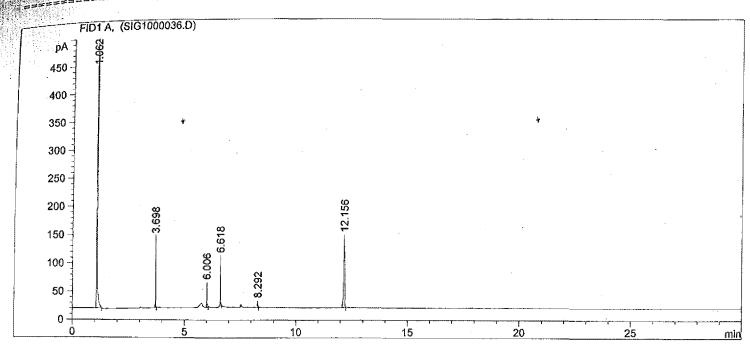
Totals : 6.28755e4 6.41218e4

Seq. Line: 36 : ASD operator petrument : DrugLab GC #2 Location : Vial 36

Fion Date : 6/22/2011 8:47:52 PM Inj: 1Inj Volume : 1 μ l

sequence File : C:\CHEM32\1\SEQUENCE\DEFAULT.S Method : 3/9/2011 1:49:11 PM by ASD

Last changed



Area Percent Report

Sorted By Retention Time Multiplier: 1.0000 Dilution: 1.0000

Sample Amount: 1.00000 [ng/ul] (not used in calc.) :

Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

	RetTime	Sig	Туре	Area	Height	Area
# ,	[min]	,		[pA*s]	[pA]	. %
1	1.062	1	BB S	6.23083e4	6.36139e4	98.94593
2	3.698	1	BB	94.14355	125.68520	0.14950
3	6.006	1	BB	51.37949	44.05204	0.08159
4	6.618	1	BB	84.73139	90.31297	0.13455
5	8.292	1	BB	16.50867	11.27383	0.02622
6	12.156	1	BB	417.00861	127.91445	0.66221

Totals : 6.29721e4 6.40131e4

File C:\CHEM32\1\DATA\SIG1000037.D

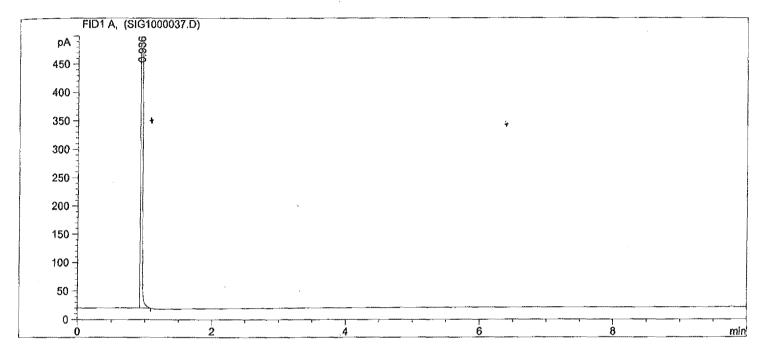
ple Name: BLANK

Acq. Operator : ASD Seq. Line : 37
Acq. Instrument : DrugLab GC #2 Location : Vial 37
Injection Date : 6/22/2011 9:21:33 PM Inj : 1

Injection Date : 6/22/2011 9:21:33 PM Inj : 1 Inj Volume : 1 μ l

sequence File : C:\CHEM32\1\SEQUENCE\DEFAULT.S
Method : C:\CHEM32\1\METHODS\ROUTINE.M

Last changed : 7/28/2010 1:59:36 PM



area Percent Report

Sorted By : Retention Time Multiplier: : 1.0000 Dilution: : 1.0000

Sample Amount: : 1.00000 [ng/ul] (not used in calc.)

Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

Peak	RetTime	Sig	Туре	Area	Height	Area
	-				[Aq]	
					6 5247164	
i	0,936	Ţ	BB S	5.80287e4	6.52471e4	1.000ez

Totals: 5.80287e4 6.52471e4

Area Percent / Library Search Report

Information from Data File:

File Name : D:\SYSTEM4\06_29_11\794359.D

Operator

: P.PIRO

Date Acquired : 30 Jun 2011 4:37

Sample Name : BLANK

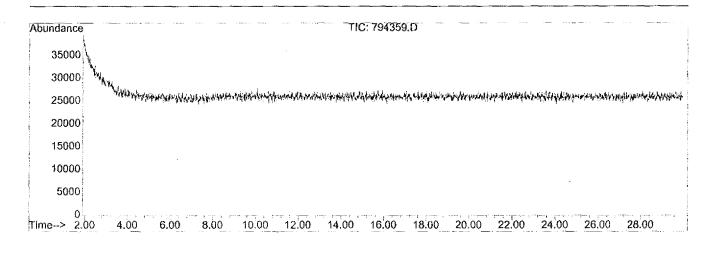
Submitted by

Vial Number 2

AcquisitionMeth: WSCREEN

Integrator

: RTE



Ret. Time

Area

Area

왕

Ratio %

NO INTEGRATED PEAKS

794359.D

Fri Jan 13 09:30:08 2012

Area Percent / Library Search Report

Information from Data File:

File Name : D:\SYSTEM4\06_29_11\794360.D

Operator

: P.PIRO

Date Acquired : 30 Jun 2011 Sample Name : BUPRENORPHINE STD

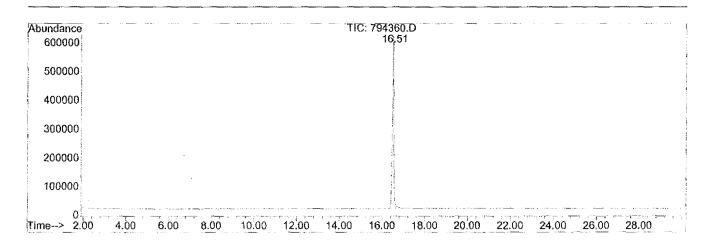
5:11

Submitted by

Vial Number 60

AcquisitionMeth: WSCREEN

Integrator : RTE



Ret. Time	Area	Area %	Ratio %
16.510	2757931	100.00	100.00

File Name : D:\SYSTEM4\06 29 11\794360.D

Operator : P.PIRO

Date Acquired : 30 Jun 2011 5:11 Sample Name : BUPRENORPHINE STD

Submitted by

Vial Number : 60
AcquisitionMeth: WSCREEN
Integrator : RTE

Search Libraries: C:\DATABASE\SLI Minimum Quality: 90

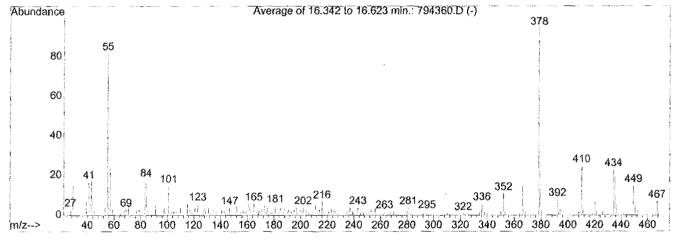
C:\DATABASE\PMW_TOX2.L

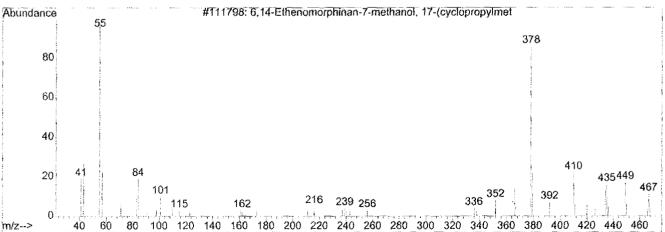
C:\DATABASE\NIST98.L

PK# RT Library/ID CAS# Qual

1 16.51 C:\DATABASE\NIST98.L
6,14-Ethenomorphinan-7-methanol, 17 052485-79-7 95

6,14-Ethenomorphinan-7-methanol, 17 052485-79-7 95 6,14-Ethenomorphinan-7-methanol, 17 052485-79-7 89 10-Methoxycamptothecin 019685-10-0 50





794360.D

Fri Jan 13 09:30:13 2012

Page 2

Minimum Quality: 90

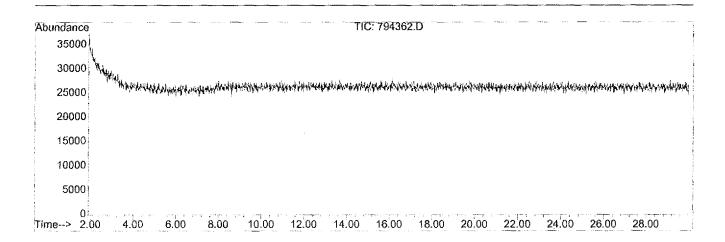
File Name : D:\SYSTEM4\06_29_11\794362.D

Operator : P.PIRO

Date Acquired : 30 Jun 2011 6:19

: BLANK Sample Name Submitted by : ASD Vial Number 2

AcquisitionMeth: WSCREEN Integrator : RTE



Ret. Time

Area

Area

왕

Ratio %

NO INTEGRATED PEAKS

794362.D

Fri Jan 13 09:30:18 2012

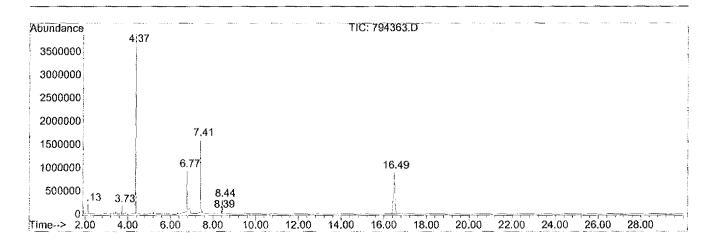
File Name : D:\SYSTEM4\06_29_11\794363.D

Operator : P.PIRO

Date Acquired : 30 Jun 2011 6:53

Sample Name :

Submitted by : ASD
Vial Number : 63
AcquisitionMeth: WSCREEN
Integrator : RTE



Ret. Time	Area	Area %	Ratio %		
2.126	370680	2.93	8.15		
3.729	224185	1.77	4.93		
4.369	3977441	31.43	87.40		
6.768	1079811	8.53	23.73		
7.408	1900415	15.02	41.76		
8.389	111533	0.88	2.45		
8.437	438593	3,47	9.64		
16.489	4550646	35.96	100.00		

File Name : D:\SYSTEM4\06 29 11\794363.D

Operator : P.PIRO

Date Acquired : 30 Jun 2011 6:53

Sample Name : Submitted by : ASD

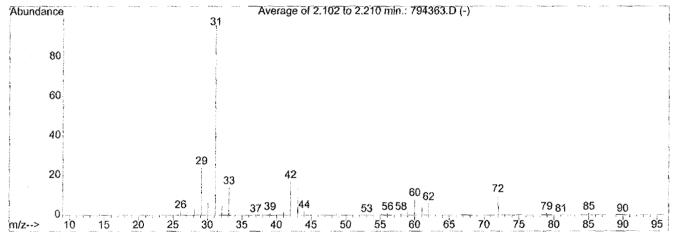
Vial Number : 63
AcquisitionMeth: WSCREEN
Integrator : RTE

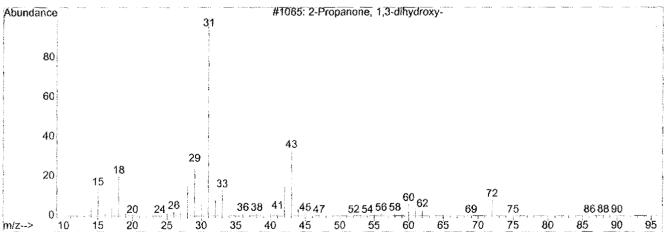
Search Libraries: C:\DATABASE\SLI Minimum Quality: 90

C:\DATABASE\PMW TOX2.L Minimum Quality: 90

C:\DATABASE\NIST98.L

PK#	RT	Library/ID	CAS#	Qual
1	2.13	C:\DATABASE\NIST98.L 2-Propanone, 1,3-dihydroxy- 1,2-Ethanediol Acetaldehyde, hydroxy-	000096-26-4 000107-21-1 000141-46-8	83 58 42





794363.D

Fri Jan 13 09:30:23 2012

: D:\SYSTEM4\06_29_11\794363.D File Name

Operator : P.PIRO

Date Acquired : 30 Jun 2011 6:53

Sample Name

Submitted by : ASD Vial Number 63

AcquisitionMeth: WSCREEN

Integrator : RTE

Search Libraries: C:\DATABASE\SLI Minimum Quality: 90

C:\DATABASE\PMW TOX2.L

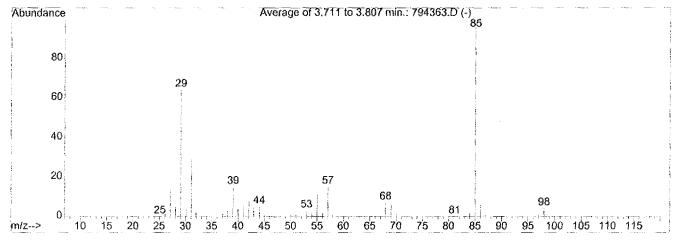
C:\DATABASE\NIST98.L

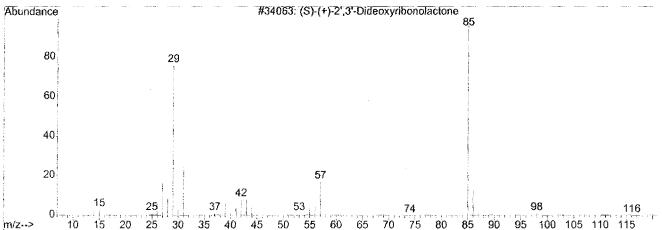
Minimum Quality: 90

PK# RT Library/ID CAS# Qual

2 3.73 C:\DATABASE\NIST98.L

> (S) - (+) - 2', 3' - Dideoxyribonolactone032780-06-6 56 2H-Pyran-2-methanol, tetrahydro-000100-72-1 50 Tetrahydrofuran-5-on-2-methanol, .a 1000192-28-3 50





794363.D

Fri Jan 13 09:30:23 2012

File Name : D:\SYSTEM4\06_29_11\794363.D

Operator : P.PIRO

Date Acquired : 30 Jun 2011 6:53

Sample Name

Submitted by : ASD Vial Number 63

AcquisitionMeth: WSCREEN Integrator : RTE

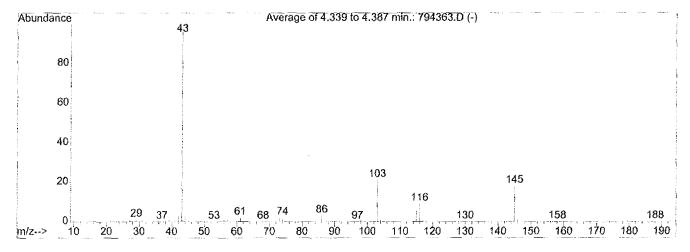
Search Libraries: C:\DATABASE\SLI Minimum Quality: 90

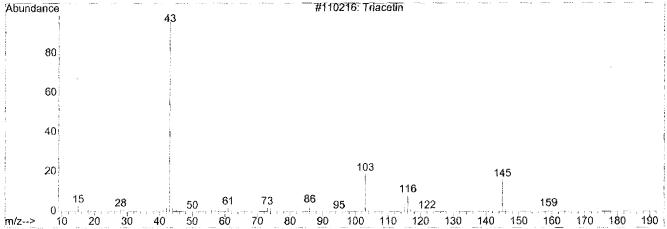
C:\DATABASE\PMW TOX2.L

C:\DATABASE\NIST98.L

Minimum Quality: 90

PK#	RT	Library/ID	CAS#	Qual
3	4.37	C:\DATABASE\NIST98.L Triacetin 1,2,3-Propanetriol, diacetate Triacetin	000102-76-1 025395-31-7 000102-76-1	90 90 90





794363.D

Fri Jan 13 09:30:24 2012

Page

: D:\SYSTEM4\06_29_11\794363.D File Name

: P.PIRO Operator

Date Acquired : <u>3</u>0 Jun 2011 6:53

Sample Name

Submitted by : ASD Vial Number 63 AcquisitionMeth: WSCREEN

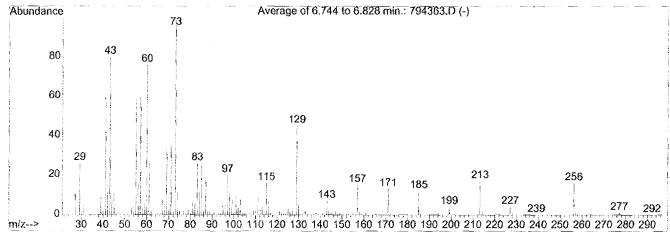
Integrator : RTE

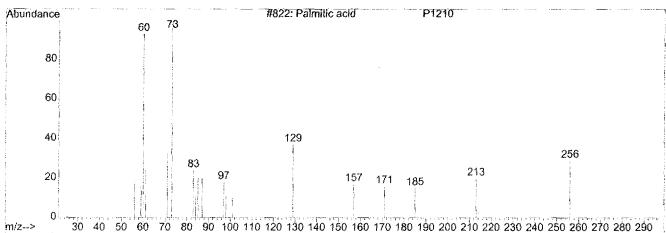
Search Libraries: C:\DATABASE\SLI Minimum Quality: 90

C:\DATABASE\PMW TOX2.L Minimum Quality: 90

C:\DATABASE\NIST98.L

PK#	RT	Library/ID	CAS#	Qual
4	6.77	C:\DATABASE\PMW_TOX2.L Palmitic acid Myristic acid Acetic acid	000057-10-3 000544-63-8 000064-19-7	91 64 7





794363.D

Fri Jan 13 09:30:25 2012

File Name : D:\SYSTEM4\06_29_11\794363.D

Operator : P.PIRO

Date Acquired : 30 Jun 2011 6:53

Sample Name : ASD : ASD

Vial Number : 63 AcquisitionMeth: WSCREEN Integrator : RTE

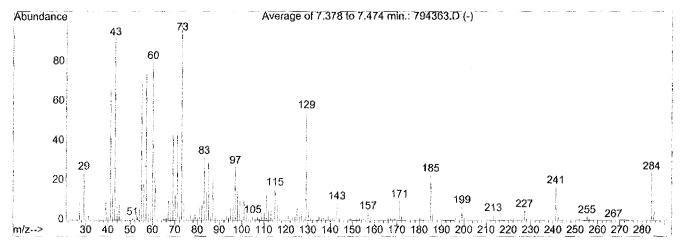
Search Libraries: C:\DATABASE\SLI Minimum Quality: 90

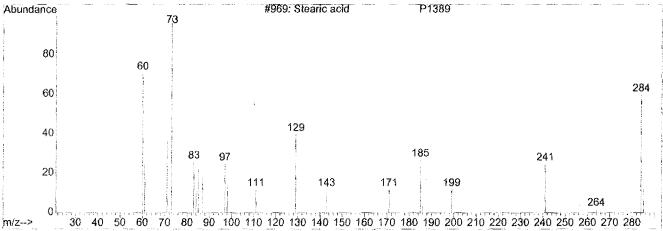
C:\DATABASE\PMW_TOX2.L

C:\DATABASE\NIST98.L

Minimum Quality: 90

PK#	RT	Library/ID	CAS#	Qual
5	7.41	C:\DATABASE\PMW_TOX2.L Stearic acid Palmitic acid Myristic acid	000057-11-4 000057-10-3 000544-63-8	97 78 59





794363.D

Fri Jan 13 09:30:25 2012

File Name : D:\SYSTEM4\06 29 11\794363.D

Operator : P.PIRO

Date Acquired : 30 Jun 2011 6:53

Sample Name

Submitted by : ASD
Vial Number : 63
AcquisitionMeth: WSCREEN
Integrator : RTE

Search Libraries: C:\DATABASE\SLI Minimum Quality: 90

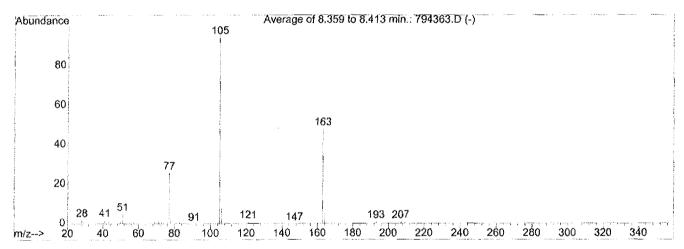
C:\DATABASE\PMW TOX2.L

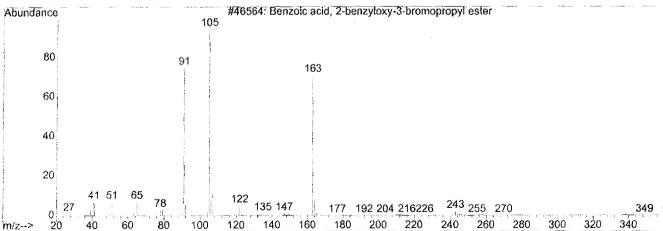
C:\DATABASE\NIST98.L

PK# RT Library/ID CAS# Qual

6 8.39 C:\DATABASE\NIST98.L

Benzoic acid, 2-benzyloxy-3-bromopr 1000191-33-3 42 Dipropyleneglycol dibenzoate 1000132-39-9 40 1,3-Benzenediol, monobenzoate 000136-36-7 25





794363.D

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Page 7

Minimum Quality: 90

File Name : D:\SYSTEM4\06 29 11\794363.D

Operator : P.PIRO

Date Acquired : 30 Jun 2011 6:53

Sample Name

Submitted by : ASD
Vial Number : 63
AcquisitionMeth: WSCREEN
Integrator : RTE

Search Libraries: C:\DATABASE\SLI

Minimum Quality: 90

C:\DATABASE\PMW_TOX2.L

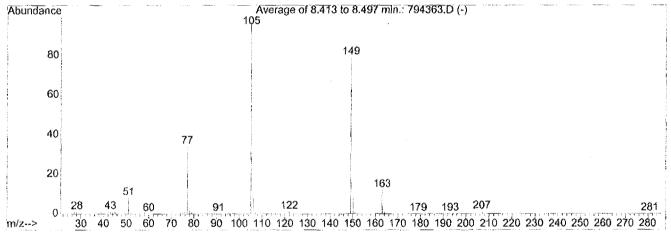
X2.L Minimum Quality: 90

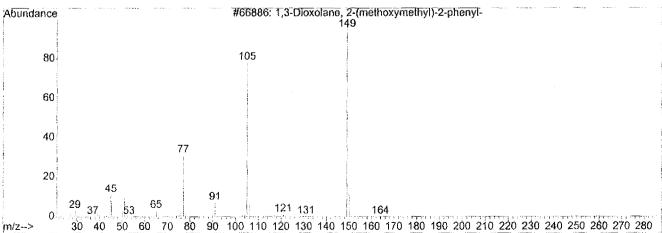
C:\DATABASE\NIST98.L

PK# RT Library/ID CAS# Qual

7 8.44 C:\DATABASE\NIST98.L

1,3-Dioxolane, 2-(methoxymethyl)-2- 1000156-71-2 78 2-(2-Carboxyvinyl)pyridine, trans 007340-22-9 52 Benzamide, N-propyl- 010546-70-0 27





794363.D

Fri Jan 13 09:30:27 2012

File Name : D:\SYSTEM4\06 29 11\794363.D

P.PIRO Operator

Date Acquired : 30 Jun 2011 6:53

Sample Name

Submitted by ASD Vial Number 63 AcquisitionMeth: WSCREEN Integrator : RTE

Search Libraries: C:\DATABASE\SLI

Minimum Quality: 90 Minimum Quality: 90

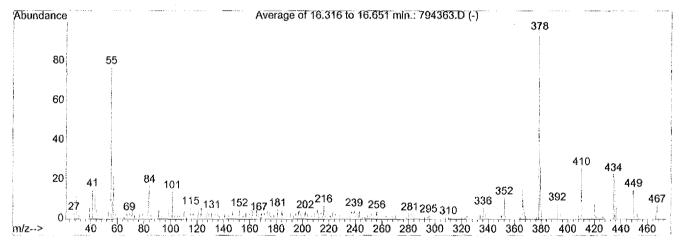
C:\DATABASE\PMW TOX2.L

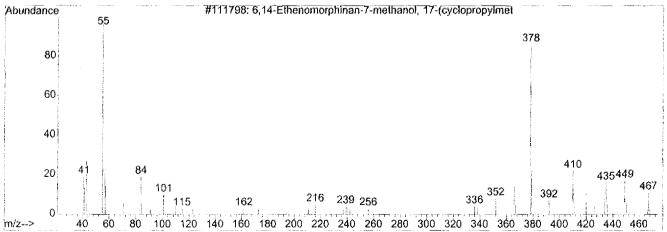
C:\DATABASE\NIST98.L

PK# RTLibrary/ID CAS# Oual

C:\DATABASE\NIST98.L 8 16.49

> 6,14-Ethenomorphinan-7-methanol, 17 052485-79-7 95 6,14-Ethenomorphinan-7-methanol, 17 052485-79-7 95 Anthiaergosta-5,7,9,22-tetraene 50 1000213-42-2





794363.D

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Area Percent / Library Search Report

Information from Data File:

File Name : D:\SYSTEM4\06_29_11\794374.D

Operator : P.PIRO

Date Acquired : 30 Jun 2011 13:14

Sample Name : BLANK

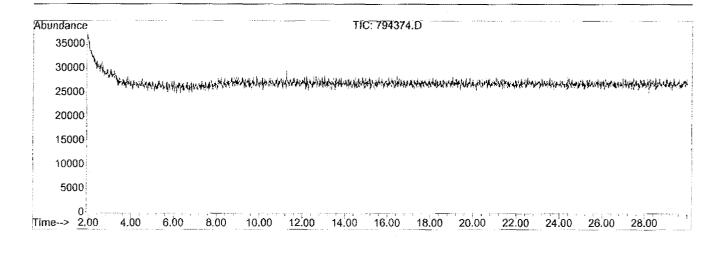
Submitted by

Vial Number AcquisitionMeth: WSCREEN

: 2

Integrator

: RTE



Ret. Time

Area

Area %

Ratio %

NO INTEGRATED PEAKS

794374.D

Fri Jan 13 09:30:35 2012

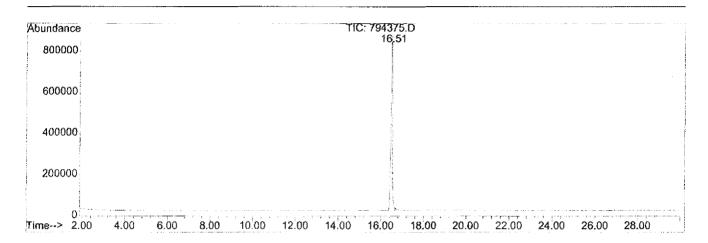
File Name : D:\SYSTEM4\06 29 11\794375.D

Operator : P.PIRO

Date Acquired : 30 Jun 2011 13:48 Sample Name : BUPRENORPHINE STD

Submitted by :

Vial Number : 60
AcquisitionMeth: WSCREEN
Integrator : RTE



Ret. Time	Area	Area %	Ratio %
16.508	4119642	100.00	100.00

File Name : D:\SYSTEM4\06 29 11\794375.D

Operator : P.PIRO

Date Acquired : 30 Jun 2011 13:48 Sample Name : BUPRENORPHINE STD

Submitted by :

Vial Number : 60 AcquisitionMeth: WSCREEN

Integrator : RTE

Search Libraries: C:\DATABASE\SLI

Minimum Quality: 90
Minimum Quality: 90

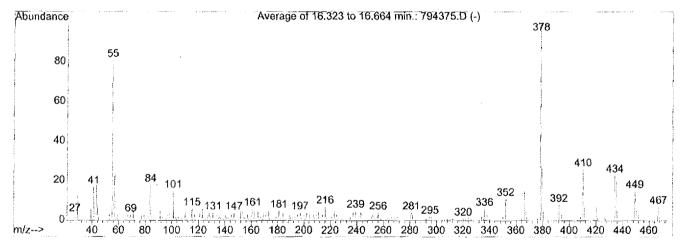
C:\DATABASE\PMW_TOX2.L

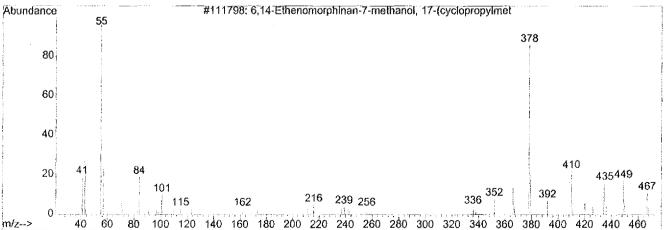
C:\DATABASE\NIST98.L

PK# RT Library/ID CAS# Qual

1 16.51 C:\DATABASE\NIST98.L

6,14-Ethenomorphinan-7-methanol, 17 052485-79-7 90 6,14-Ethenomorphinan-7-methanol, 17 052485-79-7 90 Anthiaergosta-5,7,9,22-tetraene 1000213-42-2 50





794375.D

Fri Jan 13 09:30:40 2012